Butyric acid fermentation from pretreated and hydrolyzed wheat straw by C.tyrobutyricum

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Butyric acid fermentation from pretreated and hydrolyzed wheat straw by *C.tyrobutyricum*

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Background

Butyric acid and its esters are used as food supplements, artificial flavours, solvent and even its potential beneficial effects in intestinal and extra intestinal diseases and sickle cell disease have been reported. It can be used for production of bio-plastics (e.g. cellulose acetate butyrate). Another potential use of butyric acid is to produce butanol via catalytic hydrogenation. The demand of the butyric acid is approximately 50,000 ton/year.

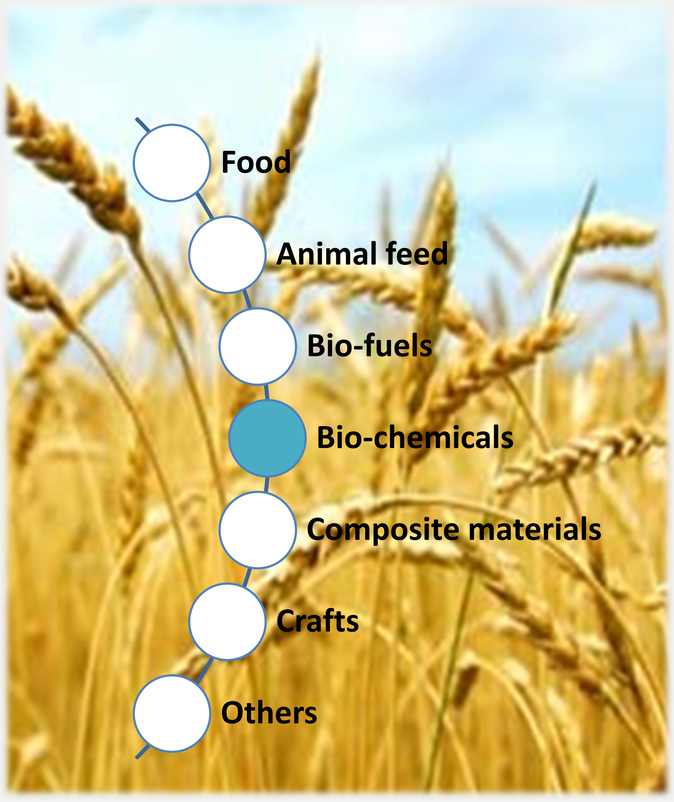
The main **bottlenecks of commercialization** of biological production of acids (in overall) are:

(1) utilization of cheap feed stocks

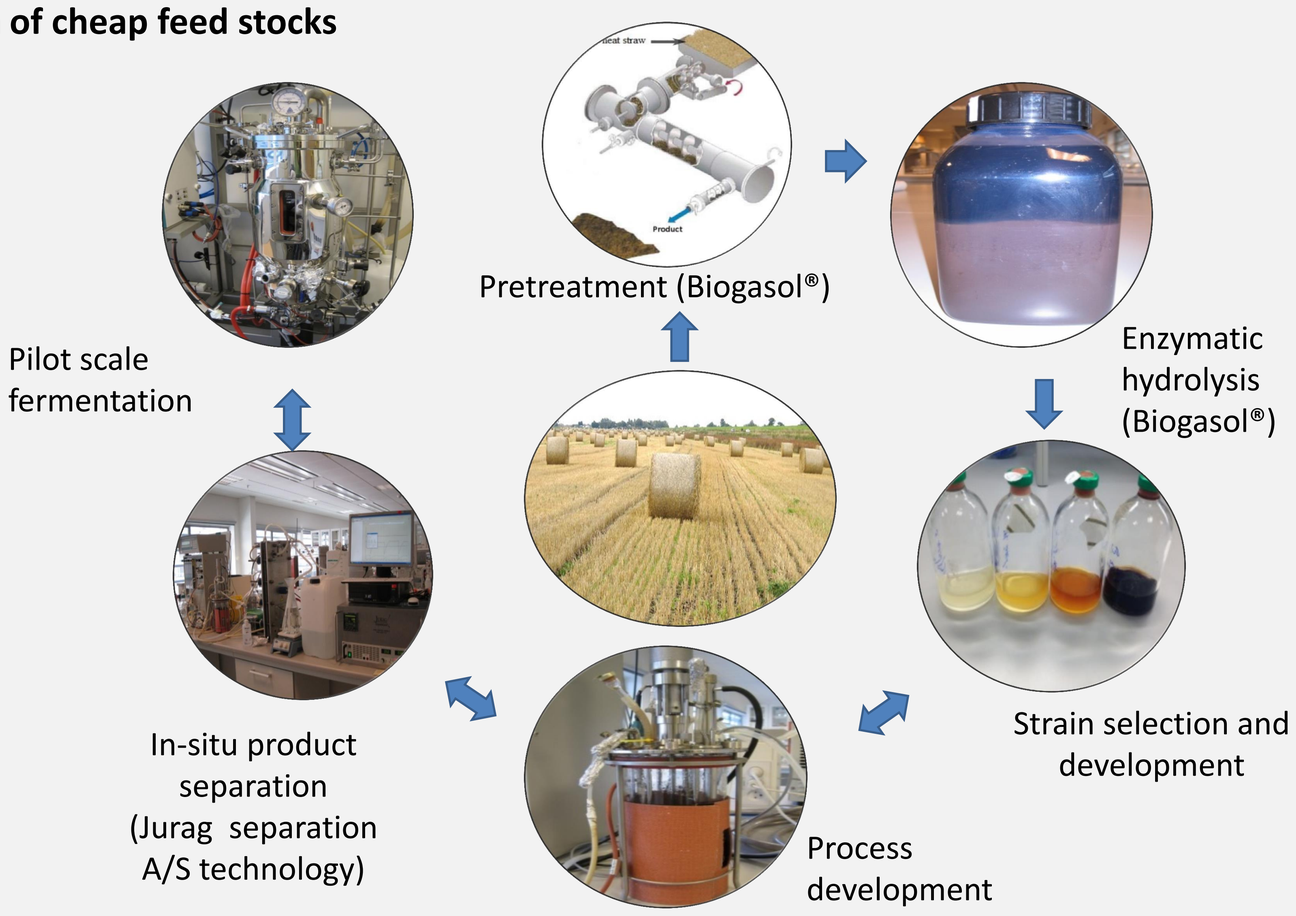
(2) Proper strain selection &/or improvement

(3) Process development.

Within SUPRABIO, we aim to develop a process for cost-efficient biological production of butyric acid from wheat straw.



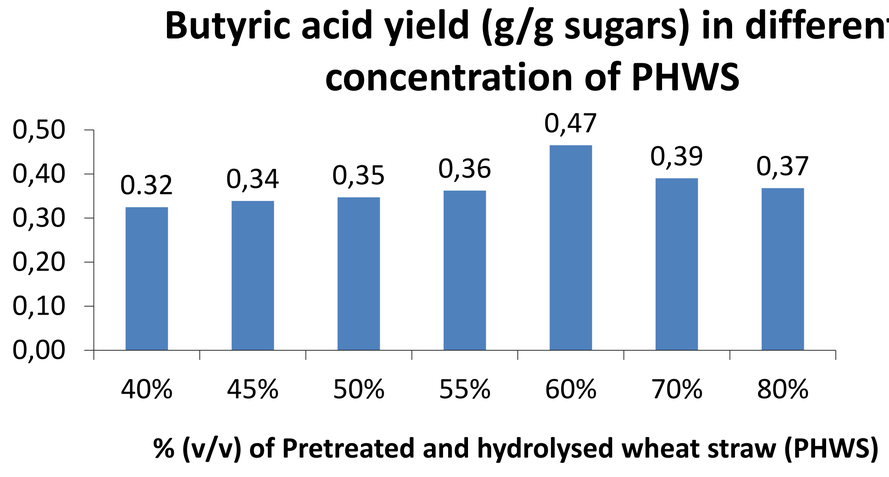
Exploitation of wheat plant

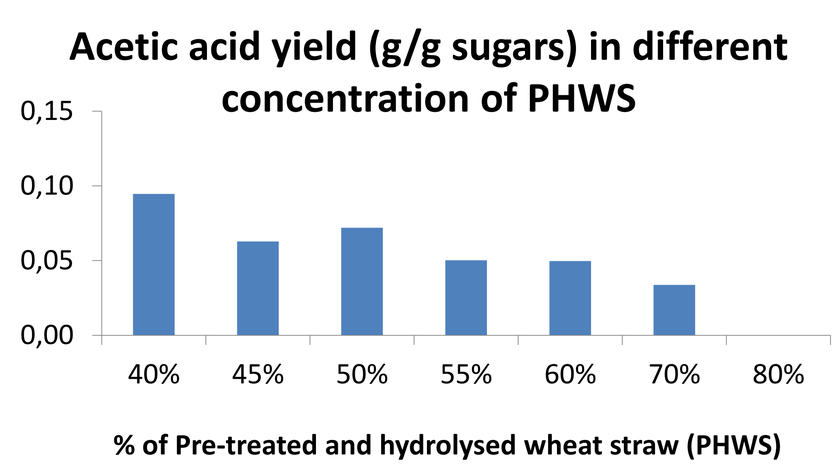


Process scheme of butyric acid production from wheat straw

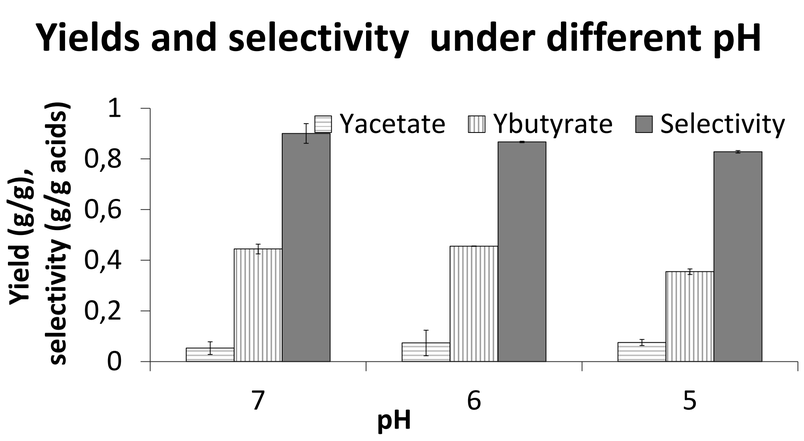
Key Outcomes

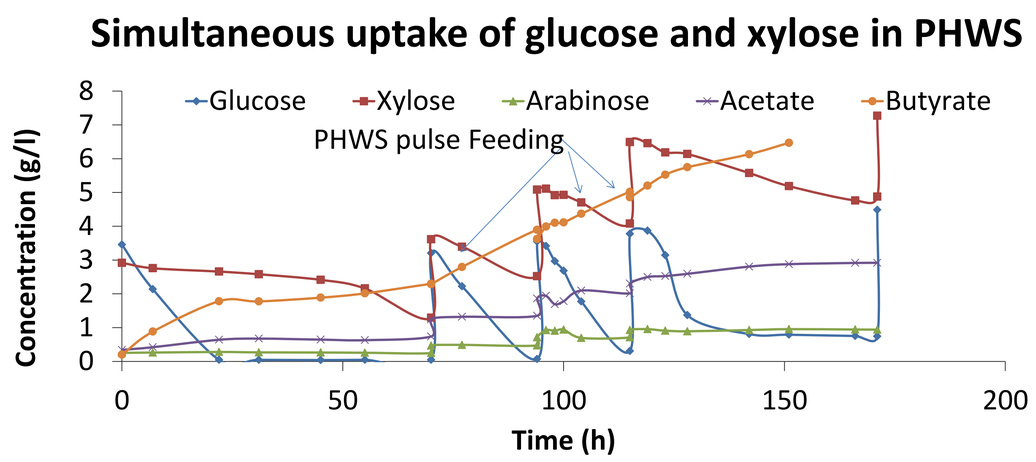
Strain development

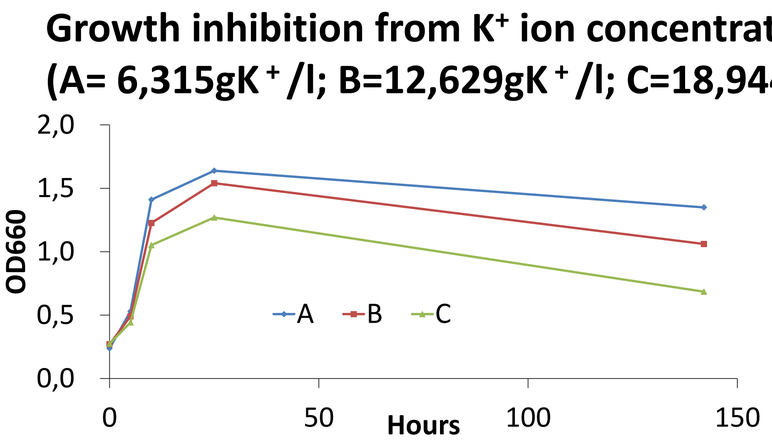


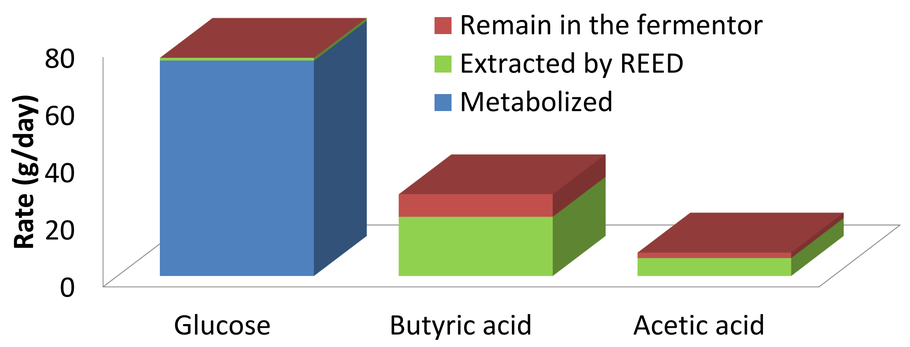


Process development









Conclusion

The developed strain (*C. tyrobutyricum*) could grow in up to 80% PHWS with higher yield (> 4,4 g/g) and selectivity (>90%). The developed process **increased the productivity over 200%,** most probably by decreasing inhibitory effects .

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